

/1 - (C) WPT / DERWENT

AN - 86-330488 [50]

AP - SU84@710118 840315

PR - SU84@710118 840315

TI - Tokamak deuterium plasma high-frequency heating - by addn. of impurity ions with charge number to mass number ratio in prescribed range and supercritical concn.

it - TOKAMAK DEUTERIUM PLASMA HIGH FREQUENCY HEAT ADD IMPURE ION CHARGE NUMBER MASS NUMBER RATIO PRESCRIBED RANGE SUPERCRITICAL CONCENTRATE

PA - (LONG/) LONGINOV A V

PN - SU1157971 A 850815 DW8650

IC - G21B1/00

AB - SU1157971 High-frequency heating of plasma, mainly deuterium or deuterium-tritium plasma in a non-uniform magnetic field of a toroidal trap involves excitation of fast magnetosonic waves at a frequency corresp. to double ionic cyclotron resonance of deuterium near the axis of the plasma pinch (3). It is performed by addn. of impurity ions with a charge number to mass number ratio in a range less than 0.50 and concn. exceeding a critical value.

- By absorption at double cyclotron resonance for the addn., e.g. (10)Ne(22) isotope, and use of an impurity with a high charge number, energy is more effectively transmitted from the wave-heated impurity ions to the main ions by Coulomb collisions at a frequency which increases in proportion to the charge number squared. The input system (1) is on the outside of the torus.

- USE/ADVANTAGE - In additional heating of plasma in toroidal traps, including thermonuclear reactors. Heating is more effective and almost 3 times as effective on excitation of an individual azimuthal mode when the longitudinal index of refraction is 4.8 (in the zone of double cyclotron resonance). Bul.36/15.8.85 (6pp Dwg.No 1/2)

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